

WHAT IS CLAIMED IS:

1. A communication control system that controls multiplex communication in the form of fixed-length cells, said communication control system comprising:

5 a common cell buffer assembly that stores therein cells of the multiplex communication; and

10 a buffer management unit that controls a process of reading a cell from said cell buffer assembly and a process of writing a cell into said cell buffer assembly, thus controlling communication between a large number of input-output ports and a multiplex communication network,

15 wherein said buffer management unit comprises a cell discard controller that discards a cell stored in said cell buffer assembly when a time period of not shorter than a preset discard reference time has elapsed since storage of the cell into said cell buffer assembly.

2. A communication control system in accordance with claim 1, wherein said buffer management unit comprises:

20 a writing time management unit that maps each cell to a writing time of the cell and manages the mapping, and

said cell discard controller discards a cell, based on an elapsed time since the writing time of the cell.

25 3. A communication control system in accordance with claim 2, wherein said writing time management unit comprises:

a writing time buffer that stores a writing time of each cell in time series; and

30 a related information storage unit that stores related information, which relates data stored in said cell buffer assembly to

data stored in said writing time buffer.

4. A communication control system in accordance with claim 1,
wherein the multiplex communication includes a plurality of
5 different quality classes of communication,

the discard reference time is set for each quality class, and
said buffer management unit controls the communication
according to the quality class.

10 5. A communication control system in accordance with claim 1,
wherein said buffer management unit comprises:

a vacant buffer management unit that manages vacant areas
in said cell buffer assembly;

15 a cell management unit that stores management information
to manage places of storage of a series of cells, which constitute each
communication;

a writing controller that writes a new cell in a vacant area
specified by said vacant buffer management unit and transmits a
result of the writing to said cell management unit; and

20 a reading controller that reads a cell from said cell buffer
assembly, based on the management information in said cell
management unit and transmits a result of the reading to said
vacant buffer management unit.

25 6. A communication control system in accordance with claim 5,
wherein said cell discard controller deletes information on a place of
storage of the cell to be discarded from said cell management unit,
and transmits the place of storage as a new vacant area to said
vacant buffer management unit, thereby implementing discard of the
30 cell.

7. A method of buffer management, which is applied for
multiplex communication in the form of fixed-length cells and
manages a common cell buffer assembly, in which cells of the
5 multiplex communication are stored,

said buffer management method comprising the step of:

discarding a cell stored in said cell buffer assembly when a
time period of not shorter than a preset discard reference time has
elapsed since storage of the cell into said cell buffer assembly.

8. A buffer management method in accordance with claim 7,
said buffer management method comprising the steps of:

writing a new cell into said cell buffer assembly, mapping the
new cell to a writing time of the cell, and managing the mapping; and

15 when an elapsed time since the writing time of a cell exceeds
a preset value, discarding the cell mapped to the writing time.

9. A recording medium, in which a program is recorded in a
computer readable manner, said program being applied for multiplex
20 communication in the form of fixed-length cells and being executed to
manage a common cell buffer assembly, in which cells of the
multiplex communication are stored,

said program causing a computer to attain the function of:

discarding a cell stored in said cell buffer assembly when a
25 time period of not shorter than a preset discard reference time has
elapsed since storage of the cell into said cell buffer assembly.

10. A recording medium in accordance with claim 9, wherein
said program causes the computer to attain the functions of:

30 writing a new cell into said cell buffer assembly, mapping the

new cell to a writing time of the cell, and managing the mapping; and
when an elapsed time since the writing time of a cell exceeds
a preset value, discarding the cell mapped to the writing time.